



Creative Environment Solutions Corp.

39 West 37th Street, 14th Floor, New York, NY 10018

Phone: 212.290.6323 Fax: 212.290.6325

LICENSED & APPROVED by NYS DOH/DOL/DOS, NYC DOB/DEP, FDNY, PIE

**SURFACE SOIL INVESTIGATION REPORT
FOR
J.H.S. 126K**

Site Location:

**424 Leonard Street
Brooklyn, NY 11222**

IEH Service ID #: 62054

LLW #: 100178

Contract #: C000012708

Prepared for:

NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY

30-30 Thomson Avenue

Long Island City, New York 11101

Prepared by:

CREATIVE ENVIRONMENT SOLUTIONS CORP. (CES)

39 West 37th Street, 14th Floor

New York, New York 10018

CES PROJECT NO. 13-SCA.166.1

Submitted: December 2, 2015

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1 INTRODUCTION

In June 2007, New York State Education Department (SED) published a protocol, developed in conjunction with the New York State Department of Health (DOH), to establish proper management of Polychlorinated Biphenyls (PCBs) in caulking during school building renovation projects. The protocol includes evaluating for the presence of PCB caulk in buildings constructed or renovated between 1950 and 1977 that will be undergoing renovation/demolition.

At the direction of the New York City School Construction Authority (NYCSCA), Creative Environment Solutions Corp. (CES) performed a surface soil investigation at Junior High School 126K (J.H.S. 126K) in 2011 to determine the impact of exterior building renovations (i.e., exterior masonry modifications) involving the disturbance of caulk containing PCBs \geq 50 ppm. Based on the results of the 2011 surface soil investigation, soil areas with PCBs \geq 1 ppm were identified along the northern, eastern, southern and western side of the school building. The results of CES' *Surface Soil Investigation Report for J.H.S. 126K*, dated January 27, 2012 are included in this report.

Exterior renovations (i.e., window replacements) were recently performed at J.H.S. 126K, located at 424 Leonard Street, Brooklyn, New York, and also included the disturbance of caulk containing PCBs \geq 50 ppm. After the exterior renovations were completed, CES performed a supplemental surface soil investigation in 2015 (i.e., July 14, August 2 and August 28, 2015) to determine if there were any additional impacts to soils surrounding the school building. A visual assessment for evidence of caulk was performed by CES on July 14, 2015. Visible evidence of caulk was not observed on soils or impervious areas (e.g., concrete, asphalt) surrounding the school building. There was no visible evidence of caulk observed on soils near or around the school building.

During the supplemental investigation, surface soils already identified as containing \geq 1 ppm PCBs during the 2011 soil investigation were not re-sampled.

The purpose of the 2011 and 2015 surface soil investigations conducted at J.H.S. 126K, the subject of this document, was to assess the extent of surface soils surrounding the school building that contain \geq 1 ppm or more of PCBs.

2 METHODOLOGY

The sampling methodology utilized for the surface soil investigations was developed in consideration of the June 2007 SED guidelines and input from U.S. EPA. Sampling was conducted as follows:

- Samples were collected every twenty (20) feet laterally along the building walls in unpaved soil areas around the building, forming grid “columns”.
- Samples were collected at the following distances from the building façade (except at locations with no exposed soils, or restricted access) at each of the above referenced grid column locations, forming grid “rows”:
 - 0.5 feet
 - 3 feet
 - 8 feet
 - 10 feet
 - 12 feet
 - 14-15 feet
 - 17 feet
 - 19 feet
 - 21 feet
 - 23 feet
 - 25 feet
 - 27 feet
- At each sampling location, one soil sample was collected at a depth of 0 – 2” below the ground surface, including the root zone but excluding the vegetative layer. The “vegetative layer” is the layer above the soil surface (i.e. blades of grass). The root zone was included as part of the surface soil samples.
- If all samples within the first row (0.5’ from the building) at an exposed soil area yielded total PCB concentrations less than 1 ppm, analysis of the remaining samples within that soil area was not performed (i.e. negative stop) based on the soil closest to the building having the highest likelihood of being impacted by caulk.
- If any of the samples within the first row yielded a total PCB concentration exceeding 1 ppm, then all of the samples within the next row were analyzed. Analyses were continued in this manner until all of the samples in an exposed soil area were analyzed or no exceedances of the 1 ppm guideline were observed.

Soil samples were not collected in soil areas that were separated from the building façade by eight (8) feet or more of an impervious surface (e.g., concrete or asphalt).

3 FIELD INVESTIGATION

CES performed the previous (2011) and more recent supplemental (2015) surface soil investigations. During these investigations, surface soil samples were collected at a distance of 0.5', 3', 8', 10', 12', 14', 15', 17', 19', 21', 23', 25' and 27' from the building façade at a depth of 0 – 2" below the ground surface (bgs).

All soil samples were collected using a dedicated disposable trowel, directly placed into laboratory-supplied 4 oz glass jars with Teflon lids and analyzed for PCBs. Dedicated sampling equipment was used to prevent the possibility of cross-contamination between sampling locations.

All samples were collected, properly cooled and packaged to prevent breakage. Samples were transported under chain-of-custody to York Analytical Laboratories, Inc. and Phoenix Environmental Laboratories, Inc., DOH-approved laboratories under the Environmental Laboratory Approval Program (ELAP) and analyzed for total PCBs in accordance with EPA Method 8082.

During the surface soil investigations, CES collected a total of one hundred seventy-six (176) surface soil samples, including seventeen (17) QA/QC duplicate samples. In accordance with the previously described surface soil sampling methodology, one hundred sixty-six (166) surface soil samples, including seventeen (17) QA/QC duplicate samples, were analyzed for total PCBs. The results of the analysis are shown in Table 1.

4 FINDINGS

Based on the results of the 2011 surface soil investigation, PCB concentrations in surface soil samples with ≥ 1 ppm were found in the following areas as shown in Figure 1B and Figure 1C:

1. Along the western side of the school building (sampling areas S1 through S4)
2. Along the southern side of the school building (sampling areas S4, and S5)
3. Along the eastern side of the school building (sampling areas S7)
4. Along the northern side of the school building (sampling area S8)

At sampling areas S1 through S5 PCB concentrations in surface soil samples exceeding 1 ppm were found at a distance of up to eight (8) feet from the school building. At sampling areas S7 and S8 PCB concentrations in surface soils samples exceeding 1 ppm were found at a distance of up to twenty-seven (27) from the school building.

PCB concentrations in surface soil samples exceeding 50 ppm were detected up to a distance of three (3) feet along the eastern, southern, and western sides of the school building.

There was no detection of PCB concentrations exceeding 1 ppm at soil sampling area S6.

Additional soil areas identified during the 2015 surface soil investigation with PCB concentrations ≥ 1 ppm were found in the following areas as shown in Figure 1C:

1. Along the eastern and northern side of the school building adjacent to the soil areas previously identified with ≥ 1 ppm PCBs during the 2011 surface soil investigation.

A summary of sampling locations and analytical results are shown in Figure 1A – Figure 1C and Table 1, respectively. Laboratory analytical reports can be found in a corresponding attachment of this report.

5 CONCLUSIONS AND RECOMMENDATIONS

The results of the 2011 and 2015 surface soil investigations identified concentrations with ≥ 1 ppm PCBs in soil samples collected in the western areas along Leonard Street; the southern areas along Bayard Street, in the eastern and northern soil areas along Bayard Street and Manhattan Avenue (i.e., Soil Sections #7 and #8) exceeded 1 ppm. In addition PCB concentrations in surface soil samples exceeding 50 ppm were found in soil areas along the western, southern, and eastern sides of the school building.

Based on the results of the surface soil investigation, the non-hazardous PCB surface soils (i.e., PCB concentrations ≥ 1 ppm and < 50 ppm) cover an area of approximately 3,020 square feet. Assuming a 2-foot excavation depth, approximately 224 cubic yards of non-hazardous soils will require remediation. In addition, hazardous PCB surface soils (i.e. PCB concentrations ≥ 50 ppm) cover an area of approximately 4,306 square feet. Assuming a 2-foot excavation depth, approximately 319 cubic yards of hazardous soils will require remediation. The total estimated cost of remediation is approximately \$520,000. The proposed non-hazardous and hazardous surface soil excavation areas are shown in Figure 2.

Excavated soil with less than 50 ppm PCB will be disposed of as non-hazardous PCB Remediation Waste at a licensed municipal solid waste facility (with advanced EPA notification) or at a TSCA-permitted facility, in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(ii) and (a)(5)(v)(A).

Excavated soil containing ≥ 50 ppm PCB should be disposed as a New York State Hazardous Waste and a PCB Remediation Waste at a RCRA hazardous waste or at a TSCA-permitted landfill facility, in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(iii).


Further details regarding the surface soil sampling locations, analytical results, and proposed PCB soil excavation areas can be found in Figure 1A – Figure 1C, Figure 2 and Table 1 of this report.





6 REPORT CERTIFICATIONS

Creative Environmental Solutions Corp. (CES) performed the PCB Surface Soil Investigation at Public School K126, located at 424 Leonard Street, Brooklyn, New York 11222. The investigation was performed in accordance with the NYCSCA requirements and applicable guidelines.


Breno Bondarenko
Inspector
12/2/2015
Date


Alex Borisov
Inspector
12/2/2015
Date


Matthew DeFuria
Inspector
12/2/2015
Date


Mark McCormack
Inspector
12/2/2015
Date

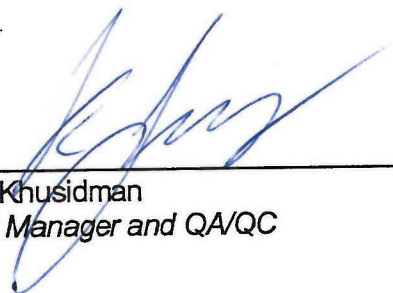
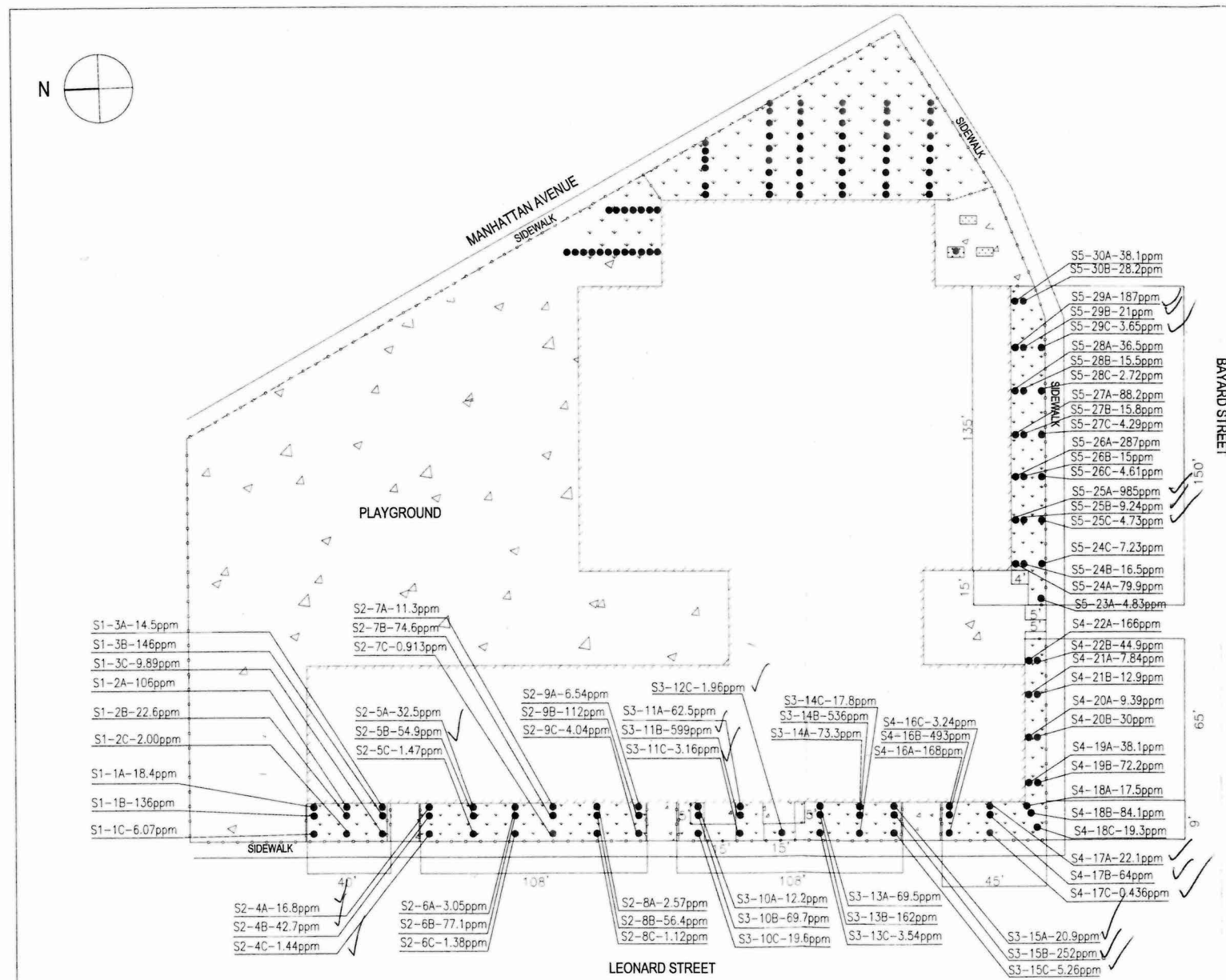

Dmitry Khosidman
Project Manager and QA/QC
12/2/2015
Date

TABLE 1

PCB SURFACE SOIL INVESTIGATION ANALYTICAL RESULTS

FIGURE 1

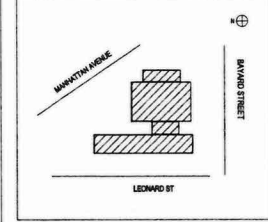
SURFACE SOIL INVESTIGATION SAMPLE LOCATIONS AND ANALYTICAL RESULTS



CREATIVE ENVIRONMENT SOLUTIONS (CES)
39 WEST 37TH STREET 14TH FLOOR
NEW YORK, NY 10018



KEY PLAN



LEGEND

- SOIL AREA
- IMPERVIOUS AREA (e.g. concrete, asphalt)
- BUILDING FOOTPRINT
- FENCE
- SAMPLES < 1ppm
- SAMPLES ≥ 1ppm, and < 50 ppm
- SAMPLES ≥ 50ppm
- SAMPLES NOT ANALYZED

NOTE:

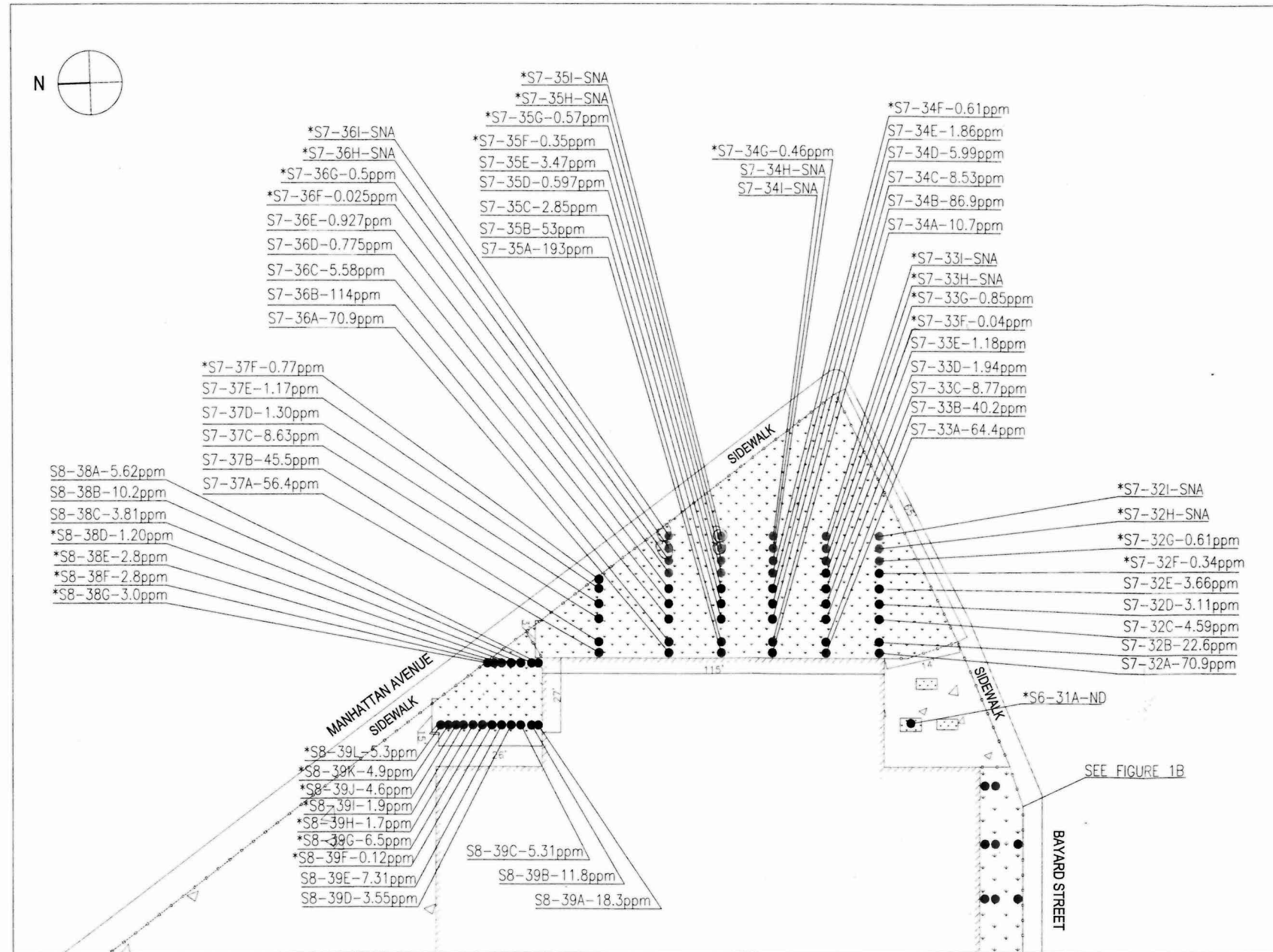
1. BUILDING, SOIL AREA DIMENSIONS AND SAMPLE LOCATIONS ARE APPROXIMATE.
 2. SOIL SAMPLES WERE COLLECTED FROM 0-2 INCHES BELOW GROUND SURFACE EVERY 20 LINEAR FEET FROM AMONG THE FOLLOWING ROWS:
- ROW A: 0.5 FEET FROM BUILDING WALL
 - ROW B: 3 FEET FROM BUILDING WALL
 - ROW C: 8 FEET FROM BUILDING WALL
 - ROW D: 10 FEET FROM BUILDING WALL
 - ROW E: 12 FEET FROM BUILDING WALL
 - ROW F: 14-15 FEET FROM BUILDING WALL
 - ROW G: 17 FEET FROM BUILDING WALL
 - ROW H: 19 FEET FROM BUILDING WALL
 - ROW I: 21 FEET FROM BUILDING WALL
 - ROW J: 23 FEET FROM BUILDING WALL
 - ROW K: 25 FEET FROM BUILDING WALL
 - ROW L: 27 FEET FROM BUILDING WALL

Designer:	M. DEFURIA
Drawn by:	M. DEFURIA, A. ARRIGO
Checked by:	D. KHUSIDMAN
Design No. or L&L No.:	100178
Facility Code:	K126
Date:	NOVEMBER 2015

FIGURE 1B: PCB SURFACE SOIL INVESTIGATION
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

J.H.S. 126K
424 LEONARD STREET
BROOKLYN, NY 11222

THE SKETCH IS FOR INFORMATIONAL PURPOSES ONLY
ALL QUANTITIES ARE TO BE FIELD VERIFIED



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NEW YORK, NY 10018

KEY PLAN

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- IMPERVIOUS AREA (e.g. concrete, asphalt)
- BUILDING FOOTPRINT
- FENCE
- SAMPLES < 1ppm
- SAMPLES ≥ 1ppm, and < 50 ppm
- SAMPLES ≥ 50ppm
- SAMPLES NOT ANALYZED
- 2015 SURFACE SOIL SAMPLE WITH PCB CONCENTRATIONS

NOTE

- BUILDING, SOIL AREA DIMENSIONS AND SAMPLE LOCATIONS ARE APPROXIMATE.
- SOIL SAMPLES WERE COLLECTED FROM 0-2 INCHES BELOW GROUND SURFACE EVERY 20 LINEAR FEET FROM AMONG THE FOLLOWING ROWS:
 ROW A: 0.5 FEET FROM BUILDING WALL
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 ROW J: 23 FEET FROM BUILDING WALL
 ROW K: 25 FEET FROM BUILDING WALL
 ROW L: 27 FEET FROM BUILDING WALL

DESIGNER: M. DEFURIA
DRAWN BY: M. DEFURIA, A. APRIGO
CHECKED BY: D. KHUSIDMAN
DESIGN NO. or L&P NO.: 100178
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DATE: NOVEMBER 2015

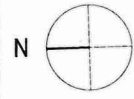
FIGURE 1C: PCB SURFACE SOIL INVESTIGATION SAMPLE LOCATIONS AND ANALYTICAL RESULTS

J.H.S. 126K
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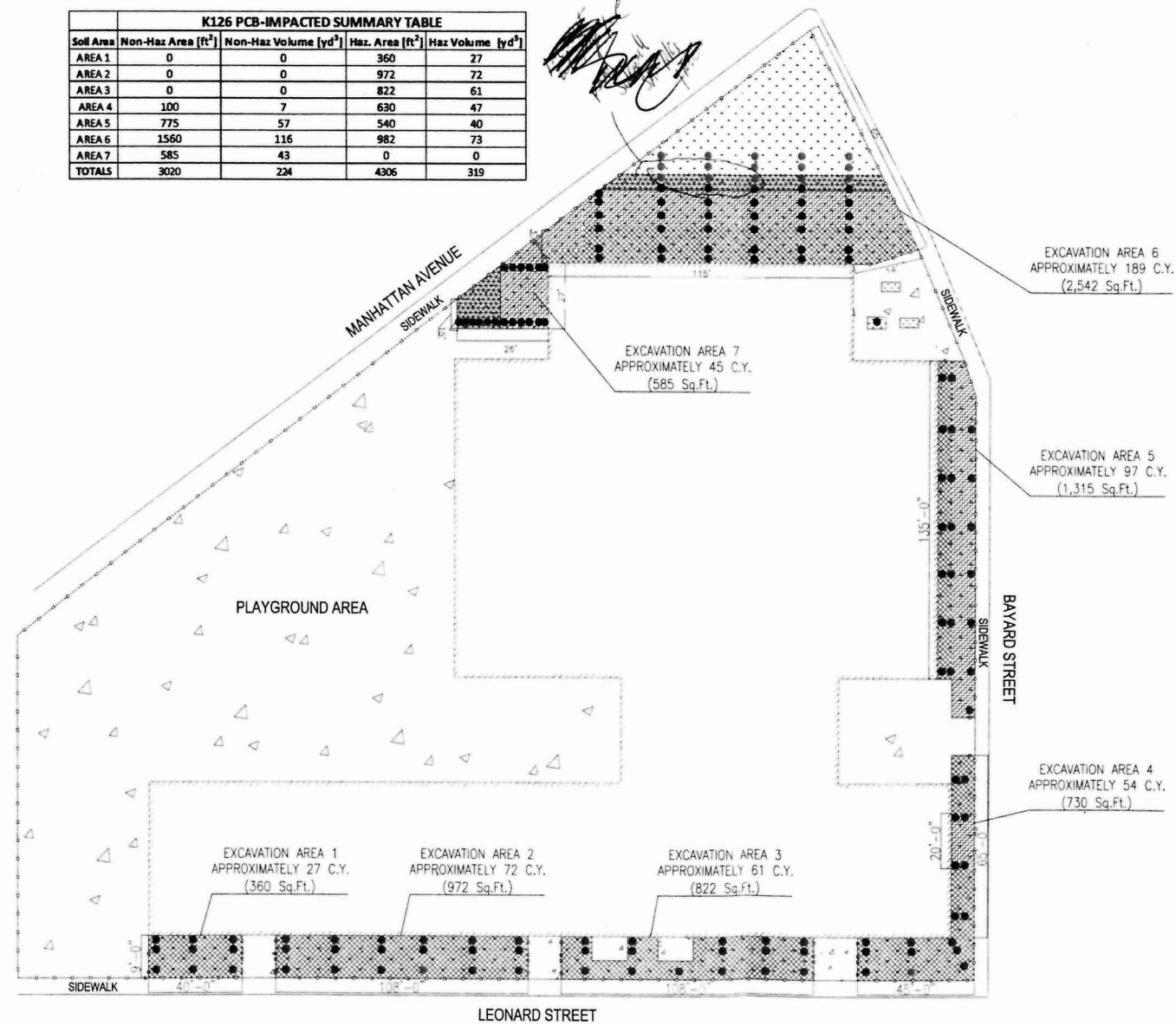
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FIGURE 2

PROPOSED EXCAVATION PLAN



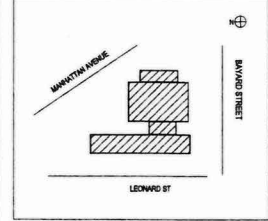
K126 PCB-IMPACTED SUMMARY TABLE				
Soil Area	Non-Haz Area [ft ²]	Non-Haz Volume [yd ³]	Haz Area [ft ²]	Haz Volume [yd ³]
AREA 1	0	0	360	27
AREA 2	0	0	972	72
AREA 3	0	0	822	61
AREA 4	100	7	630	47
AREA 5	775	57	540	40
AREA 6	1560	116	982	73
AREA 7	585	43	0	0
TOTALS	3020	224	4306	319



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KEY PLAN:



LEGEND:

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- IMPERVIOUS AREA (e.g. concrete, asphalt)
- BUILDING FOOTPRINT
- FENCE
- SAMPLES < 1ppm
- SAMPLES ≥ 1ppm, and < 50 ppm
- SAMPLES ≥ 50ppm
- SAMPLES NOT ANALYZED
- LIMIT OF NON-HAZARDOUS PCB SOIL AREAS (≤ 1 ppm to < 50 ppm), 2015
- LIMIT OF NON-HAZARDOUS PCB SOIL AREAS (≤ 1 ppm to < 50 ppm), 2011
- LIMIT OF HAZARDOUS PCB SOIL AREAS (≥ 50 ppm), 2011

NOTE:

1. BUILDING, SOIL AREA DIMENSIONS AND SAMPLE LOCATIONS ARE APPROXIMATE.

Designed by:	M. DEFURIA
Drawn by:	M. DEFURIA, A. ARRIGO
Checked by:	D. KHUSSEMAN
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FIGURE 2: PROPOSED EXCAVATION PLAN

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